

CLAIMS

1.- A rotating therapeutic bed comprising: a structural base which in turn includes wheels located at its lower portion to allow the bed to be moved from one place to another; a first removable stretcher having a first mattress to support a patient laying on his back; a second removable stretcher having a second mattress which is located in a reversed fashion and over the first stretcher and over the patient, who is laying between the mattresses of both stretchers; the second stretcher supporting the patient laying face down when the stretchers are rotated by 180° on a rotation axis crossing along the patient; front and rear members to mount and rotate the stretchers which are rotationally mounted on the structural base; the first and second stretchers being longitudinally mounted with a vertical spacing between them on such stretcher mounting and rotation members which further allow to rotate them; and side barriers coupled to the longitudinal sides of the first stretcher, as well as of the second stretcher, such barriers covering the vertical spacing between the stretchers where the patient is laying, preventing the limbs of the patient from protruding out of the stretchers when rotated.

2.- A rotating therapeutic bed according to claim 1 wherein the structural base comprises: a front section and a rear section, each formed by a horizontal portion and a vertical portion mounted on the corresponding horizontal portion forming an "L"; an elongated intermediate section longitudinally placed on the lower portion of the base and attaching the front section to the rear section; and rear and front support sections for mounting such stretcher mounting and rotation members, the support sections being integrally provided at the upper half of the front section and the rear section, in addition to be perpendicularly provided with respect to the rotation axis on which the patient is rotated by 180°.

3.- A rotating therapeutic bed according to claim 2 wherein the structural base is made of metal straight tubular profiles.

4.- A rotating therapeutic bed according to claim 2 wherein the structural base includes also a pair of conduits, each provided on every support section, crossing its width from one side to another, such conduits being coaxially lined up with the patient rotation axis, in order to introduce towards the stretchers traction means allowing to perform the cervical traction therapy of the patient or, if it is the case, to introduce saline solution lines or lines with other medical care directed to the patient.

5.- A rotating therapeutic bed according to claim 2 wherein the structural base comprises at its inner portion stretcher lifting and tilting means that are independently provided in the front section, as well as at the rear section, and which are

actuated in such a manner on the inner of the rear and front sections that they allow to lift its vertical portions over the respective horizontal portions, lifting thus the height of such stretchers. When such stretcher lifting and tilting means act only on the front section or rear section, the plane of the stretcher where the patient is laying is tilted providing thus the Trendelenburg position.

6.- A rotating therapeutic bed according to claim 1 wherein every rear and front stretcher mounting and rotation member comprises: a rotating hollow housing that is divided in a hollow intermediate section in a cylindrical shape which is coaxially lined up to the patient rotation axis; a first radial section; and a second radial section, both radial sections being hollow and in a cylindrical shape, which are perpendicularly located on the intermediate section and attached to it; the radial sections being further placed in the housing in an extremely opposed relation from one another; a rotation support axis provided at the inner portion of the intermediate section and securely attached by one of its ends to the structural base for the rotation of such a housing on it; a bearing placed between the rotation support axis and the inner wall of the intermediate section, allowing a smooth and homogeneous rotation of the housing on such a fixed rotation support axis and thus the rotational movement of the stretchers and the patient; and stretcher securing means or jaws provided at the distal portion of every radial section, every stretcher securing means or jaws being mounted on a mounting axis coaxially placed at the inner portion of every radial section of the housing; the first and second stretchers being mounted on such stretcher securing means.

7.- A rotating therapeutic bed according to claims 4 and 6 wherein such a rotation support axis is preferably formed by a steel tube section and coaxially lined up to such conduits for the introduction of traction means.

8.- A rotating therapeutic bed according to claim 6 wherein the bearing is a rotation bearing or bushing made of bronze.

9.- A rotating therapeutic bed according to claim 6 wherein the mounting axis of every stretcher securing means is threaded on its proximal portion with respect to the rotation support axis and is smooth at its distal portion; and every stretcher securing means comprises: a proximal plate attached to the threaded portion of the mounting axis and that may be moved on it in order to adjust the height at which the stretchers are mounted with respect to the rotation support axis; a distal plate apart from the proximal plate and that slides freely on the flat surface of the mounting axis, the distal plate being attached to the proximal plate by means of a connection element; and a closing lever which is operatively attached to the connection element that at its closing position reduces the spacing distance between the proximal plate and the distal plate in order to firmly

secure the first stretcher or the second stretcher in such a manner that, with such a distance reduction between plates, the stretchers are firmly mounted.

10.- A rotating therapeutic bed according to claim 6 wherein every stretcher mounting and rotation member further includes a removable stop element placed at the free end of the fixed rotation support axis that prevents undesired horizontal movements of the housing on the fixed rotation support axis. When removed, such a stop element allows the disassembly of the stretcher mounting and rotation member from the structural base.

11.- A rotating therapeutic bed according to claim 1 wherein it further comprises: internal rotation-blocking means provided at the inner portion of every stretcher mounting and rotation member which, when being at their blocking position, internally allow their rotational movement and prevent thus the stretchers and patient to be rotated when the bed is only partially assembled; and external rotation-blocking means provided at the structural base which, when being at their blocking position, externally avoid the rotationally movement of at least one of the member to mount and to rotate stretchers, preventing thus both stretchers and the patient to be rotated; the internal and external rotation-blocking means act together so that the rotation of stretchers is achieved only when the first stretcher and the second stretcher are firmly mounted on the stretcher mounting and rotation members, as well as when the side barriers are mounted on both stretchers, whereby internal rotation-blocking means are automatically released to achieve then a 180° rotation of the stretchers upon manually releasing external rotation-blocking means.

12.- A rotating therapeutic bed according to claim 11 wherein the external rotation-blocking means block the rotationally movement of the rear stretcher mounting and rotation member.

13.- A rotating therapeutic bed according to claims 6 and 11 wherein internal rotation-blocking means are provided in pairs within every rear and front member to mount rotate stretchers, each pair being housed in every radial sections of the housing.

14.- A rotating therapeutic bed according to claim 13 wherein internal rotation-blocking means comprise: a main body traveling at the inner part of the corresponding radial section of the housing of the stretcher mounting and rotation member; such main body being in a cylindrical shape and divided in two sections: a proximal portion and a distal portion having a diameter less than that of the proximal section, such main body being attached to the mounting axis of the stretcher securing means; a blocking safety device attached to the proximal end of the main body; and a stop that is secured to the end of the corresponding radial section of the housing of the

stretcher mounting and rotation member; the blocking safety device blocking the rotation of the housing when it is within a cooperating cavity provided on the fixed rotation support axis for every of such pair of internal rotation-blocking means, the blocking safety device being released from such a cavity when the main body travels within the corresponding radial section of the housing a sufficient distance in order for the main body distal portion to protrude from such a radial section; the movement being stopped by the stop also preventing the main body proximal portion from protruding from the housing.

15.- A rotating therapeutic bed according to claim 11 wherein external rotation-blocking means comprise: a housing attached to the structural base support section; and a retractile bolt crossing the housing from one side to another; at the blocking position, the first end of such a bolt is housed within a first cavity provided in the middle part of the housing of the stretcher mounting and rotation member, whereby its rotationally movement is externally blocked; the second end of the bolt is provided with a ring allowing to manually move the bolt, in order to remove it first end out from the first cavity, whereby the bed is free for a 180° rotation.

16.- A rotating therapeutic bed according to claim 15 wherein, upon completing the 180° rotation, the first end of the retractile bolt is automatically housed in a second cavity provided in the housing of the stretcher mounting and rotation member in an extremely opposed fashion to the first cavity, whereby the rotationally movement is blocked again.

17.- A rotating therapeutic bed according to claim 1 wherein, in addition to the first mattress, the first stretcher comprises: a main frame in a rectangular shape including stretcher mounting sections at its front and rear ends, which allow the stretcher to be mounted on the stretcher mounting and rotation members; a cover or coating covering the upper surface of the main frame in order to secure the first mattress; and a folding section or back support provided as a hinge at the front portion of the stretcher in order to keep the patient seated on it.

18.- A rotating therapeutic bed according to claim 17 wherein the first mattress is divided into a front mattress section moving as a hinge and coincident with the folding section; and a rear mattress section provided with a removable section which, once it is removed from the first mattress, allows to put in place a bedpan in order for the patient to evacuate.

19.- A rotating therapeutic bed according to claim 18 wherein the first mattress surface further comprises on it front and rear padded stop sections which are detachably jointed or attached as hinge to the mattress sides by attachment and closing means; by being placed on the first mattress, such stop sections form a space between

them simulating the patient's body contour preventing thus the patient to be laterally moved when performing the rotationally movement of the stretchers. Likewise, front and rear stop sections act as a side extension surface of the mattress when they are moved on such attachment and closing means, the side extension surface being useful to place on it light articles or the patient's arms or legs.

5           20.- A rotating therapeutic bed according to claim 19 wherein such attachment and closing means are hook strips and short fibers (Velcroâ).

10          21.- A rotating therapeutic bed according to claim 17 wherein the first mattress is coated with a watertight material such as canvas or plastic.

15          22.- A rotating therapeutic bed according to claim 17 wherein the folding section is integrated by: a secondary frame in a rectangular shape which is attached as a hinge to the main frame of the first stretcher; a support frame attached as a hinge to the lower portion of the secondary frame and allowing to keep the back support at the desired position when such a frame is supported on the main frame of the first stretcher by means of a horizontal support base; and position selection bars attached to the longitudinal sides of the main frame of the first stretcher, such bars provided with a plurality of position notches where the ends of the support base are received in order to achieve the desired inclination of the back support.

20          23.- A rotating therapeutic bed according to claim 22 wherein the back support is further provided with back support securing means allowing to secure it to the main frame of the first stretcher in a horizontal position.

25          24.- A rotating therapeutic bed according to claim 23 wherein such securing means are a pin that is introduced in a cooperating notch or recess provided at one of the front lower corners of the main frame of the first stretcher.

30          25.- A rotating therapeutic bed according to claim 17 wherein stretcher mounting sections are provided in the main frame of the first stretcher in the shape of a horizontal transversal bar.

35          26.- A rotating therapeutic bed according to claim 17 wherein the main frame and the folding section of the first stretcher are made of metal materials such as aluminum or steel.

              27.- A rotating therapeutic bed according to claim 17 wherein the coating is made of a watertight material such as canvas or plastic.

              28.- A rotating therapeutic bed according to claim 1 wherein, in addition to the second mattress of the second stretcher, it comprises: a main frame in a rectangular shape including stretcher mounting sections at its front and rear ends, which allow the stretcher to be mounted on the stretcher mounting and rotation members; front,

intermediate, and rear coating portions that are apart from each other and that cover most of the upper surface of the main frame, the second mattress being placed on the intermediate and rear coating portion in order to support most of the patient's body when he is laying face down; and a pillow or cushion placed on the front coating portion to support the patient's forehead when he is laying face down.

29.- A rotating therapeutic bed according to claim 28 wherein such a pillow and the front coating section are respectively apart from the second mattress and from the intermediate coating section by a distance sufficient to allow the patient having a free visual field and with no interferences when he is laying face down.

10 30.- A rotating therapeutic bed according to claim 28 wherein the main frame of the second stretcher is made of metal materials such as aluminum or steel.

31.- A rotating therapeutic bed according to claim 28 wherein coating sections are made of a watertight material such as canvas or plastic.

15 32.- A rotating therapeutic bed according to claim 28 wherein the second mattress and the pillow are coated with a watertight material such as canvas or plastic.

33.- A rotating therapeutic bed according to claim 28 wherein stretcher mounting sections are provided in the main frame in the shape of a horizontal transversal bar.

20 34.- A rotating therapeutic bed according to claims 9, 25, and 33 wherein the horizontal bar conforming the mounting sections of the first and second stretchers is pressed between the proximal plate and distal plate of a stretcher securing means so that, when the lever of such a stretcher securing member is closed, stretchers are firmly mounted by means of such a horizontal bar.

25 35.- A rotating therapeutic bed according to claim 34 wherein the mounting sections of the first and second stretchers, as well as the stretcher securing members include alignment and centering means allowing the central longitudinal axis of both stretchers to be placed at a common vertical plane, along with the patient rotation axis, when stretchers are mounted on stretcher securing means, achieving thereby a perfect balance of stretchers with respect to the patient rotation axis and the structural base and facilitating thus the patient 180° rotation.

30 36.- A rotating therapeutic bed according to claim 35 wherein such alignment and centering means are integrated by cooperating cylindrical protrusions provided at the middle portion of every mounting section of both stretchers, the protrusions being perpendicularly projected upwards and downwards the mounting sections, so that they are received in cooperating holes provided both in the proximal plate and in the distal plate of every stretcher securing means.

37.- A rotating therapeutic bed according to claim 35 wherein every stretcher securing means comprise also guide means to initially receive the front and rear mounting section of the stretcher to be mounted. From such a position, the guide means arrive to such a mounting section between the proximal plate and the distal plate of the stretcher securing means where they are firmly mounted upon actuating the closing lever.

38.- A rotating therapeutic bed according to claim 37 wherein such guide means are formed by an intermediate plate located between the distal plate and the proximal plate and integrally attached to the latter; such an intermediate plate has a cutout or notch with a circular path formed from its surface, the cutout having a closed end at the inner portion of the intermediate plate and an open end at its edge. In a first operation, the stretcher securing member is rotated by 90° on its mounting axis, so that the intermediate plate is directed towards the inner portion of the bed to place on it the corresponding mounting section of the stretcher that is being mounted and, at the same time, the corresponding cylindrical protrusion is introduced, which protrudes downwards from the mounting section at the closed end of such a cutout. Then, in a second operation, the stretcher securing means is returned to its original position so that, with this movement, the protrusion runs along such a cutout while the mounting section is received at the proximal plate or distal plate under it in order that, once this operation is completed, the mounting section is placed between the proximal and distal plates; and the protrusion is introduced in the plate hole receiving the mounting section, whereby the plates are ready to be closed by means of the closing lever.

39.- A rotating therapeutic bed according to claim 1 wherein every side barrier comprises: an elongated body with a central section in a rectangular shape and end portions in trapezoidal shape; the elongated body ends are provided with vertical bars including a plurality of lower and upper bores which receive coupling means provided in the first and second stretchers allowing the barrier to be coupled to both stretchers, each upper and lower bores being apart one from another by a vertical distance.

40.- A rotating therapeutic bed according to claim 39 wherein such coupling means are formed by bolts included in every outer corner of the longitudinal sides of the first stretcher, as well as of the second stretcher, such bolts crossing and protruding from such a plurality of lower and upper bores.

41.- A rotating therapeutic bed according to claim 40 wherein such bolts preferably have a cylindrical body with a conical tip and include a circumferential notch around its middle part, such a notch having such a width and deepness that it supports the width of the vertical bars provided with every upper and lower bores receiving the bolt, allowing thereby to couple the side barriers to the stretchers.

42.- A rotating therapeutic bed according to claim 39 wherein the side barriers are made of metal materials such as aluminum or steel.

43.- A rotating therapeutic bed according to claim 13 wherein at the radial sections of the stretcher mounting and rotation members where the stretcher supporting the patient laying face down is mounted, rotation-blocking means are released by its weight.

44.- A rotating therapeutic bed according to claims 9 and 11 wherein the internal rotation-blocking means of the radial sections where the stretcher placed over the patient is mounted are released by closing the levers of the stretcher securing means using the closing lever, provided that the side barriers are coupled to stretchers, such side barriers generating an upwards movement of internal rotation-blocking means.